

A P-TYPE OFET WITH FLUORINATED CHANNELS

ABSTRACT OF THE DISCLOSURE

The present invention provides an organic field-effect transistor (OFET) and a method of fabricating the OFET. The OFET, configured to function as a p-type semiconductor, includes a substrate having a top surface and a semiconductor layer located over the top surface. The semiconductor layer comprises organic semiconductor molecules. Each of the organic semiconductor molecules includes a core having conjugated pi bonds, a fluorinated alkyl group, and an alkyl spacer group having a chain of two or more carbon atoms. One end of the chain is bonded to the fluorinated alkyl group and another end of the chain is bonded to the core. Substituents coupled to the carbon atoms have an electronegativity of less than about 4.